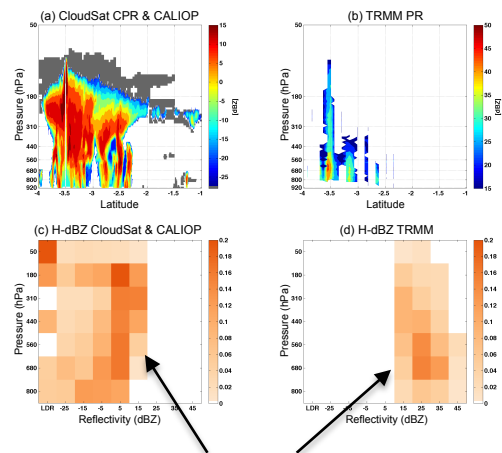


Tropical Cloud and Precipitation Regimes and Vertical Structures as Seen from 15,896 TRMM and CloudSat/CALIPSO Match-up Cases

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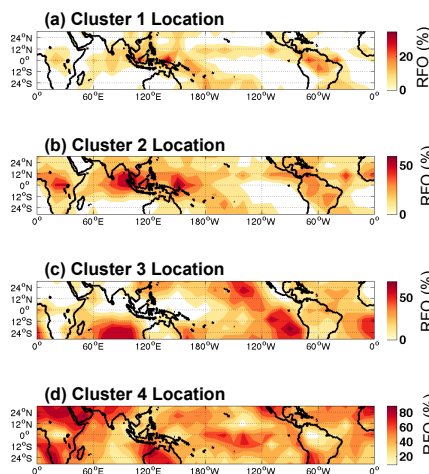
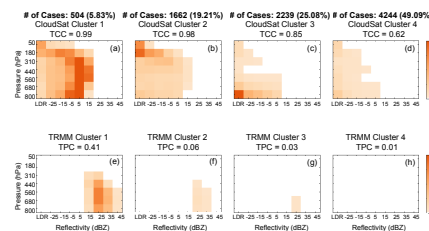


Objective: Exploiting 15,896 TRMM and CloudSat/CALIPSO match-up cases within 20 min of each other (30S-30N), we investigated the internal vertical structures and regimes of tropical cloud and precipitation systems.

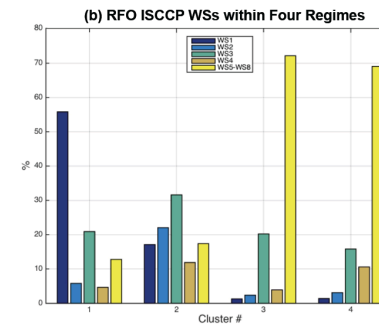


Note the complimentary and synergistic nature of PR and CPR/CALIPSO: together, they almost fill up the entire H-dBZ space.

Four clusters/regimes are identified using k-mean cluster analysis



Comparisons with ISCCP Weather States show broad agreement, but also reveal differences due to different sampling strategies and viewing geometries



Reference: Luo, Z. J., R. C. Anderson, W. B. Rossow, and H. Takahashi (2017), Tropical cloud and precipitation regimes as seen from near-simultaneous TRMM, CloudSat, and CALIPSO observations and comparison with ISCCP, *J. Geophys. Res. Atmos.*, 122, 5988–6003, doi:10.1002/2017JD026569.